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A REVIEW OF THE SPECIES OF *LIODESSUS* GUIGNOT OF NORTH AMERICA NORTH OF MEXICO WITH THE DESCRIPTION OF A NEW SPECIES (COLEOPTERA: DYTISCIDAE)

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Abstract.—*Liodessus youngi,* n. sp., is described from specimens from New Mexico (type locality = Radium Springs, Dona Ana Co.), Colorado and South Dakota. Short diagnostic descriptions of each of the six species of *Liodessus* Guignot [*L. affinis* (Say), *L. cantralli* (Young), *L. flavicollis* (LeConte), *L. fuscatus* (Crotch), and *L. hobbsi* (Young)] found in the Nearctic region and a key for their identification are provided.

Examination of various collections of Dytiscidae revealed an undescribed species of *Liodessus* Guignot (Dytiscidae: Hydroporinae: Bidessini). The genus *Liodessus* is well characterized in Young (1967) and Biström (1988a). It is a moderately diverse genus distributed world-wide. Modern taxonomic treatments are available for the species occurring in Africa (Biström, 1988b), Australia (Watts, 1978), and New Zealand (Ordish, 1966); the New World species of *Liodessus* are listed in Young (1969). The species of the bidessines assigned to this genus are moderately well known for North America. However there is no key available which treats all of these species. One additional Nearctic species, not treated here, *L. abjectus* (Sharp), is known from Mexico but as it was described from Oaxaca it may well be a member of the Neotropical fauna. Therefore, the purposes of this paper are to provide a key to species of *Liodessus* of North America north of Mexico, to present uniform descriptions of these species, and to provide short diagnostic descriptions of each species including a previously un-named species along with collecting notes and comments about known distributions. In this review standard taxonomic methods were used (e.g., Larson, 1975).

DIAGNOSIS OF *LIODESSUS* GUIGNOT

The tribe Bidessini was erected by Sharp (1882). Presently, the principal character used to define all members of Bidessini is the common presence of two- or three-segmented parameres of the aedeagus of adult males (Biström, 1988a). Biström (1988a:18) provided a diagnosis for members of *Liodessus* based on the type species, *L. affinis* (Say). Young (1967:76) provided a diagnostic description of adult *Liodessus* in the New World.

Diagnosis. Among Nearctic genera of Bidessini, adult specimens of *Liodessus* can be recognized by the following combination of characters: head with a transverse stria or ridge extending across occiput just posterior to eyes; clypeal margin simple, not modified; pro- and mesotarsus apparently four-segmented; elytral epipleuron

without a humeral, oblique carina; elytron dorsally with basal stria present or absent, one species (*L. cantralli*) with a sutural row of punctures forming a more or less distinct sutural groove, otherwise elytron simple, not modified; mesosternum simple, not modified; and abdominal sternum 6 (last visible) narrow and subtriangular in shape, with small basolateral impressions.

KEY TO SPECIES OF *LIODESSUS* GUIGNOT OF NORTH AMERICA NORTH OF MEXICO

1. Elytron with basal stria lacking or represented by at most a very small impression which is not produced linearly onto disc (Fig. 5); metacoxal plate and metasternum medially coarsely punctate 2
1′. Elytron with basal stria originating adjacent to base of pronotal stria, length of stria variable but evidently linear and longitudinal (Figs. 1–4); metacoxal plate and metasternum with punctation various 3
2(1). Elytron fuscous with sub-basal, sub-median and apical, transverse pale fascia (Fig. 5), some few specimens with elytron entirely fuscous; elytral surface very densely punctate, punctures separated less than their diameter, conspicuously setose ..... *L. flavicollis* (LeConte)
2′. Elytron more or less uniformly dark brownish yellow, without distinct maculation; elytral surface coarsely punctate but punctures sparser and separated by about one to two times their diameter, less conspicuously setose ..... *L. hobbsi* (Young)
3(1′). Elytron yellow with longitudinal brown vittae, or if mainly dark brown, with a few longitudinal, discal, paler spots (Fig. 4); metatibia mainly yellow with distinct infuscation limited to apical third, although some specimens with vague medial infuscation; metacoxal plate with punctures fine, on many specimens obscured by rugose sculpture; elytron with stria well developed, length of stria/length of elytron: 0.07 to 0.14 ..... *L. affinis* (Say)
3′. Elytron uniformly brown to piceous, or if with pale discal markings, metacoxal plate coarsely punctate and elytral stria short, length of stria/length of elytron: 0.02 to 0.08; metatibia with distal two thirds distinctly infuscate 4
4(3). Elytron, on at least basal half, with a sutural groove formed by a longitudinal series of relatively deeply impressed punctures; body in dorsal aspect with lateral margin of pronotum and elytron forming a more or less continuous curve (Fig. 3); metasternum medially finely and inconspicuously punctate ..... *L. cantralli* (Young)
4′. Elytron without a distinct subsutural groove; body in dorsal aspect with lateral margin of pronotum and elytron strongly discontinuous (Figs. 1, 2); metasternum medially distinctly punctate 5
5(3′). Pronotum with lateral stria short, 0.48 to 0.63 length of pronotum measured at same point; elytron with basal stria shorter, length of stria/length of elytron: 0.02 to 0.08; metacoxal plate with coarse punctures more or less evenly distributed ..... *L. fuscatus* (Crotch)
5′. Pronotum with lateral stria long, 0.67 to 0.88 length of pronotum measured at same point; elytron with basal stria longer, length of stria/length of elytron: 0.09 to 0.12; metacoxal plate with coarse punctures few in number, shallower and irregularly distributed ..... *L. youngi*, n. sp.

Liodessus youngi, new species

Description. Habitus, Figure 1. Body oval, lateral margin discontinuous in outline between pronotum and elytron, but not so strongly as in *L. fuscatus*. Measurements and ratios are presented in Table 1.

Table 1. Measurements and ratios for North American species of *Liodessus*. Range, mean, standard deviation.

	Species					
n	*L. affinis* 40	*L. cantralli* 17	*L. flavicollis* 12	*L. fuscatus* 20	*L. hobbsi* 1	*L. youngi* 32
Length (L)	1.78–2.28 2.00 (0.10)	1.73–1.96 1.82 (0.05)	1.55–1.82 1.72 (0.08)	1.72–2.02 1.86 (0.07)	1.67	1.78–2.20 1.95 (0.06)
Width (W)	0.86–1.16 0.99 (0.06)	0.86–1.04 0.93 (0.03)	0.84–0.97 0.92 (0.05)	0.86–1.01 0.93 (0.03)	0.81	0.90–1.15 0.98 (0.04)
L/W	1.92–2.09 2.01 (0.04)	1.86–2.02 1.95 (0.03)	1.81–1.94 1.88 (0.03)	1.92–2.10 2.01 (0.03)	2.07	1.91–2.04 1.99 (0.03)
Elytron L/L	0.67–0.71 0.69 (0.01)	0.65–0.69 0.67 (0.01)	0.61–0.69 0.67 (0.02)	0.61–0.69 0.66 (0.02)	0.65	0.66–0.70 0.69 (0.01)
Prontal stria/ Pronotal L	0.56–0.67 0.61 (0.03)	0.57–0.80 0.70 (0.06)	0.25–0.35 0.29 (0.03)	0.48–0.63 0.55 (0.04)	0.54	0.67–0.88 0.73 (0.06)
Elytral stria/ Elytral L	0.07–0.14 0.11 (0.02)	0.11–0.17 0.14 (0.02)	elytral stria absent	0.02–0.08 0.05 (0.02)	elytral stria absent	0.09–0.12 0.10 (0.01)
W between eyes/ W across eyes	0.56–0.61 0.59 (0.02)	0.61–0.66 0.64 (0.01)	0.52–0.57 0.55 (0.01)	0.61–0.64 0.63 (0.01)	0.62	0.59–0.65 0.62 (0.01)

Dorsal surface dark reddish brown, except anterior margin of head, lateral margin of pronotum, as well as humeral and posterior margins of elytron paler, yellowish brown to pale reddish brown, gradually darkening mesally. Some specimens with vaguely defined maculations on elytron. Metasternum, metacoxal plates and abdominal sterna dark brown to piceous, abdomen at least as dark as metacoxa and metasternum. Antennomeres 1 to 4 or 5 mainly yellow, outer antennomeres largely or entirely infuscate. Palpi each with apical palpomere dark, basal palpomeres yellow. Front and middle legs pale brown, hind legs darker, metatibia yellowish basally, at least apical two-thirds distinctly darker brown.

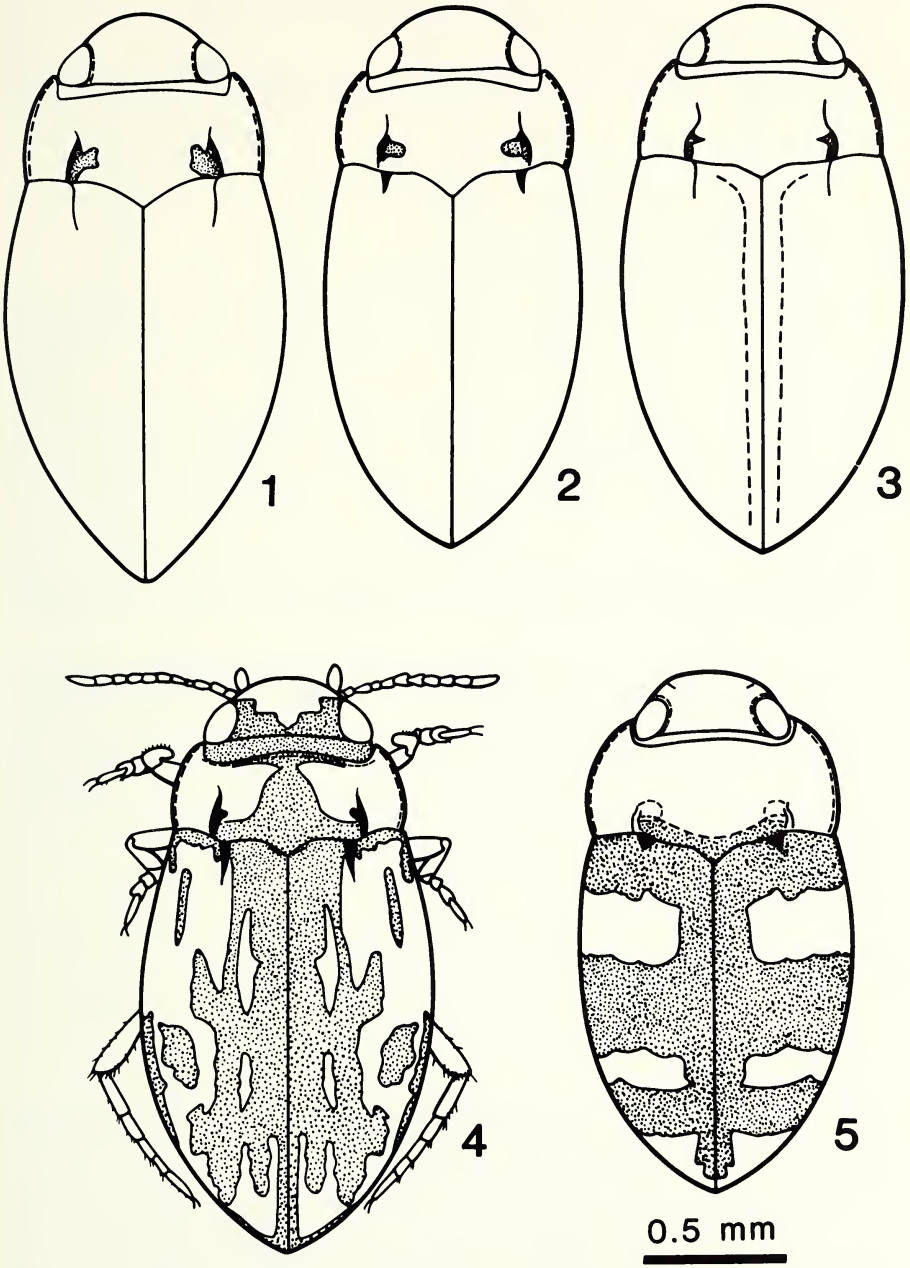
Head rather finely punctate except for a group of coarse punctures medially on frons. Pronotum conspicuously punctate, punctures small medially on disc, coarser posteriorly and most specimens with two to five large punctures along hind margin between posterolateral angle and base of lateral stria. Elytron coarsely punctate, punctures separated by about their own diameter, each puncture bearing a fine seta subequal in length to or slightly shorter than distance between punctures; epipleuron finely punctate. Metasternum medially with small but evident punctures. Metacoxal plate slightly rugose but not so coarsely as to obscure rather widely spaced, coarse punctures. Abdomen with sternum 1 coarsely punctate along anterior and posterior margins; sterna 2 to 5 very finely and sparsely punctate; sternum 6 with small deep punctures medioapically. Dorsal surface of males smooth and shiny between punctures; females various, some male-like in sculpture, some with entire surface finely microreticulate and somewhat dulled, others with reticulation restricted to apical third of elytron.

Pronotum relatively strongly rounded laterally (Fig. 1), with point of maximum width slightly anterior from hind angles; basal margin strongly sinuate, margin between base of stria and lateral angle arcuate, posterolateral angle evidently produced; lateral stria well developed, two-thirds or more length of pronotum measured along same line, strongly delimited laterally; lateral bead of moderate width, broadest basally and gradually narrowed apically. Elytra elongate oval in dorsal aspect, moderately narrowed towards base; in lateral profile, dorsal margin gently and evenly rounded to apex in apical half; basal stria sharply impressed, about one-half to three-fourths length of pronotal stria; epipleuron in lateral aspect visible to or almost to humeral angle. Metacoxal lines diverging anteriorly.

Aedeagus (Fig. 6) arcuate in lateral aspect, slightly broadened medially; shaft subparallel and straight for a short distance submedially, apex not differentiated.

Etymology. We take pleasure in naming this species after Dr. Frank N. Young, in recognition of the important contributions he has made to the understanding of American Bidessini.

Type material. Holotype, male, USA, New Mexico, Dona Ana Co., Radium Springs, nr. Rio Grande, 29 April 1984, D. Larson & J. Zimmerman. Deposited in United States National Museum of Natural History [USNM]. Allotype, female, same collection data as holotype. Deposited in USNM. Paratypes, all other specimens of this species that were examined have been labelled as paratypes. Colorado, state locality only, (2, Canadian National Collection, Ottawa [CNC]). New Mexico, type locality and date, (16, California Academy of Sciences, San Francisco [CAS], Museum of Comparative Zoology, Harvard University [MCZ], and USNM). South Dakota, 2 mi NW Rapid City, 22 June 1940, H. C. Severin (10, CNC); Rapid City, 7 Sept.



Figs. 1–5. North American *Liodessus*, body outline. Fig. 1. *L. youngi*. Fig. 2. *L. fuscatus*. Fig. 3. *L. cantralli*. Fig. 4. *L. affinis*. Fig. 5. *L. flavicollis*.

1940, pond, H. C. Severin (1, J. B. Wallis Museum of Entomology, University of Manitoba, Winnipeg [JBWM]).

Collecting notes. The New Mexican specimens were collected from among flooded grasses and plant debris in very shallow water at the margin of a large spring-fed marsh.

Liodessus fuscatus (Crotch)

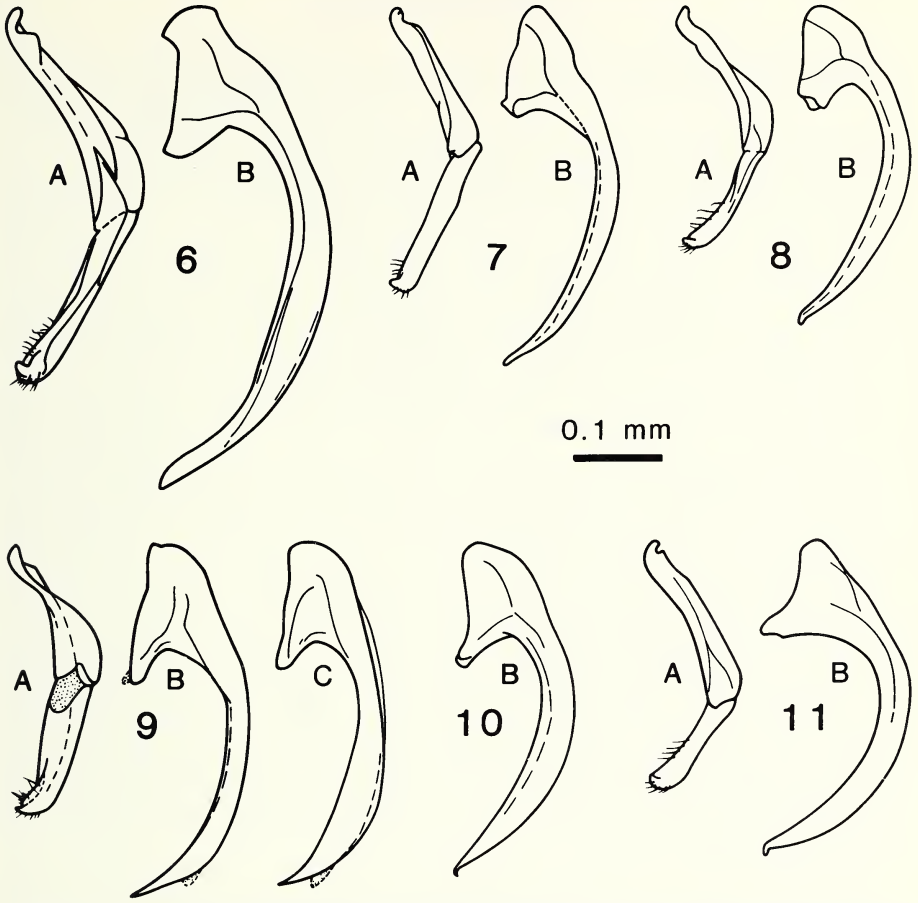
Hydroporus fuscatus Crotch 1873:391.
Selected references: Young, 1954:60, 62; Brigham, 1982:10.71.

Description. Habitus, Figure 2. Body ovate, lateral margin strongly discontinuous in outline between pronotum and elytron. Measurements and ratios presented in Table 1.

Dorsal surface reddish brown to piceous. Head yellowish to dark brown, darker than pronotum, pronotum yellowish anteriorly and laterally becoming brown to piceous basomedially, elytron maculate or not, maculations consisting of darker brown blotches on mainly yellowish brown elytron, or isolated yellowish brown spots on dark brown to piceous elytron. Ventral surface more or less uniformly brown to piceous. Antennomeres 1 to 2 yellow, outer antennomeres largely to entirely infuscate. Palpi unicolorous and yellow or each with apical palpomere darker. Legs brown with tibiae and tarsi darkened, metatibia lighter basally, at least apical three-fourths darker brown.

Head rather finely punctate except for a group of coarse punctures medially on frons. Pronotum conspicuously punctate, punctures small anterolaterally, larger but well separated on disc, coarser posteriorly and most specimens with two to three large punctures along hind margin between posterolateral angle and base of lateral stria. Elytron coarsely punctate, punctures separated by about 1.5 to 2 times their own diameter, each puncture bearing an inconspicuous seta generally shorter than distance between punctures; epipleuron finely but evidently punctate. Metasternum with distinct punctures, smaller than those of metacoxa. Metacoxal plate slightly rugose but not so coarsely as to obscure numerous, coarse punctures. Abdomen with sternum 1 coarsely punctate along anterior and posterior margins; sternum 2 coarsely punctate laterally; sterna 3 to 5 very finely and sparsely punctate; sternum 6 with small, deep punctures medioapically. Dorsal surface of males smooth and shiny between punctures; females various, some male-like in sculpture, some with entire surface finely microreticulate and somewhat dulled, others with reticulation restricted to apical third of elytron.

Pronotum relatively strongly rounded laterally (Fig. 2), with point of maximum width clearly anterior to hind angles, some specimens with sides of pronotum subparallel in basal half; basal margin strongly sinuate, margin between base of stria and lateral angle arcuate, posterolateral angle strongly produced; lateral stria well developed, about one-half to two-thirds length of pronotum measured along same line, strongly delimited laterally; lateral bead of moderate width, broadest basally and gradually narrowed apically. Elytra elongate oval in dorsal aspect, slightly narrowed towards base; in lateral profile, dorsal margin abruptly rounded to apex in apical half; basal stria sharply impressed, short; epipleuron in lateral aspect narrowly visible to humeral angle. Metacoxal lines slightly diverging anteriorly.



Figs. 6–11. North American *Liodessus,* male genitalia, A—paramere, lateral aspect; B and C—aedeagus, lateral aspect. Fig. 6. *L. youngi.* Fig. 7. *L. fuscatus.* Fig. 8. *L. cantralli.* Fig. 9. *L. affinis,* B—Sable I., Nova Scotia, C—Summerland, British Columbia. Fig. 10. *L. flavicollis.* Fig. 11. *L. hobbsi.*

Aedeagus (Fig. 7) arcuate in lateral aspect; shaft subparallel and more or less straight medially, apex narrower, otherwise not differentiated.

Collecting notes. In eastern North America, these beetles are most often found in sphagnum moss mats at the margin of small pools and ponds. Young (1954) considered *L. fuscatus* to be "the most characteristic species of the sphagnum-leatherleaf bogs, seldom occurring outside of them except where isolated patches of sphagnum occur." However, in Manitoba and Michigan specimens were collected from small pools with sandy substrates and aquatic plants such as *Carex, Chara* and *Utricularia,* as well as in a *Drepanocladus* fen.

Distribution. The known range of this species extends from Labrador to Saskatchewan and south to northern Florida and Texas.

Liodessus cantralli (Young)

Bidessus cantralli Young 1953:111.
Selected references: Young, 1953:111–112; Larson, 1975:262–264.

Description. Habitus, Figure 3. Body oval, lateral margin not strongly discontinuous in outline between pronotum and elytron. Measurements and ratios in Table 1.

Dorsal surface chestnut brown, slightly paler along margins. Elytron not maculate although some specimens with the sutural margin slightly darkened. Ventral surface pale brown to chestnut brown, abdomen lighter than metacoxa and metasternum basally, darker apically. Antennomeres 1 to 2 mainly yellow, outer antennomeres largely to entirely infuscate. Palpi unicolorous, pale brown or with apical palpomeres darker. Front and middle legs pale brown, tibia and tarsi darkened, hind legs darker, metatibia paler basally, at least apical two-thirds distinctly darker brown.

Head rather finely punctate. Pronotum not conspicuously punctate, punctures small medially and more or less widely spaced, coarser and more dense posteriorly, with two or three small basolateral punctures. Elytron conspicuously punctate but punctures sparse, separated by two to three times their diameter, except suturally a series of closely set, deep punctures forming a longitudinal impression in basal half of most specimens, area between impression and suture minutely, sparsely punctate; each puncture bearing an inconspicuous seta, shorter than distance between punctures; epipleuron quite finely punctate. Metasternum medially with punctures very small and sparse. Metacoxal plate somewhat rugose but not so coarsely so as to obscure rather widely spaced, coarse punctures. Abdomen with sternum 1 coarsely punctate along anterior and, on most specimens, posterior margin; sterna 2 to 5 very finely and sparsely punctate; sternum 6 with only a few punctures medially on some specimens. Dorsal surface of males smooth and shiny between punctures, appearing polished; females various, most male-like in sculpture, some with rudiments of effaced microreticulation; both sexes with sternum 6 microreticulate, more strongly so in female specimens.

Pronotum relatively weakly rounded laterally (Fig. 3), with point of maximum width at hind angles; basal margin slightly sinuate, margin between base of stria and lateral angle slightly arcuate, posterolateral angle only slightly produced; lateral stria well developed, long, about three-fourths length of pronotum measured along same line, strongly delimited laterally; lateral bead narrow. Elytra broadly oval in dorsal aspect, only slightly narrowed towards base; in lateral profile, dorsal margin gently rounded to apex in apical half; basal stria sharply impressed, shorter than pronotal stria; epipleuron in lateral aspect hidden behind lateral margin for a short distance behind humerus. Metacoxal lines diverging anteriorly.

Aedeagus (Fig. 8) arcuate in lateral aspect; shaft uniformly tapered, apex with a small dorsal hook.

Collecting notes. Specimens of *L. cantralli* occur in small pools and depressions in moss (usually *Drepanocladus*) mats. It is more characteristic of fen than bog habitats. Adults have been collected in early spring and late fall indicating adult overwintering. No flight records are available.

Distribution. The known range of this species is from Alberta to Manitoba in Canada. In the United States it is recorded only from Michigan, however, as its habitat is poorly collected it is probably much more wide-spread but only locally distributed.

Liodessus affinis (Say)

Hydroporus affinis Say 1823:104.

Selected references: Young, 1954:60–61, 70–71; Larson, 1975:262–263; Brigham, 1982:10.71; Biström, 1988a:18, 21.

Description. Habitus, Figure 4. Body ovate, lateral margin more or less continuous between pronotum and elytron or with a slight discontinuity. Measurements and ratios in Table 1.

Color various. Dorsal surface yellow to reddish with darker markings as follows: hind margin of head, a central spot on pronotum and more or less linear maculations on elytra. Ventral surface of most specimens with at least metasternum and metacoxal plates dark brown to piceous and strongly contrasting with yellowish abdomen; some specimens with most of ventral surface dark. Antennomeres 1 to 4 mainly yellow, outer antennomeres largely to entirely infuscate. Palpi unicolorous and yellow or each with apical palpomere darker. Legs mainly yellow, metatibia lighter basally, at most apical third darker.

Head relatively coarsely punctate, larger punctures more widespread on frons, larger punctures as large as medial punctures of pronotum. Pronotum not conspicuously punctate, punctures small mediolaterally and more or less widely spaced, coarser and denser medially on darkened area and posteriorly between bases of striae, basolateral punctures relatively small. Elytron conspicuously punctate, punctures separated by about 1.5 to 2 times their own diameter, each puncture bearing a fine, conspicuous seta, subequal in length to or slightly longer than distance between punctures; epipleuron with punctation obsolete. Metasternum inconspicuously punctate. Metacoxal plates rugose, rugae largely obscuring sparse, shallow punctures. Abdomen with sternum 1 coarsely punctate along anterior and posterior margins; sterna 2 to 5 sparsely punctate, punctures shallow and somewhat effaced; sternum 6 with small deep punctures medially, basolateral impression impunctate. Dorsal surface of males smooth and shiny between punctures; females various, some male-like in sculpture, some with entire surface finely microreticulate and somewhat dulled, others with reticulation restricted to apical third of elytron.

Pronotum weakly rounded laterally (Fig. 4), with point of maximum width at hind angles; basal margin slightly sinuate, margin between base of stria and lateral angle slightly arcuate, posterolateral angle slightly produced; lateral stria well developed, one-half to two-thirds length of pronotum measured along same line, strongly delimited laterally; lateral bead of moderate width, broadest basally and gradually narrowed anteriorly. Elytra elongate oval in dorsal aspect, moderately narrowed towards base; in lateral profile, dorsal margin gently and evenly rounded to apex in apical half; most specimens with basal stria sharply impressed, about one-half to as long as pronotal stria, basal stria shorter and less strongly delimited on microreticulate specimens; epipleuron in lateral aspect hidden behind lateral margin for a short distance behind humerus. Metacoxal lines diverging anteriorly.

Aedeagus (Fig. 9; see also Biström, 1988a, fig. 15) arcuate in lateral aspect; shaft subparallel or broadened subapically, apex not differentiated.

Remarks. It is likely that this species is composite (Young, 1954). Throughout North America, at least, a great deal of variation occurs in body shape, colour and structure. However, no author has identified points of discontinuity in the distribution of these characters which would permit definition of more homogeneous and narrowly

defined species. A careful study of geographical patterns of variation is needed. Our remarks are confined to specimens occurring north of Mexico.

Collecting notes. These beetles occur in a wide variety of habitats. Adults and larvae are frequently collected in gravel and sand along quiet stretches of warm streams and springs (Harris et al. 1981). They are also abundant in newly formed ponds as well as in warm, shallow areas of vegetation-rich ponds. Specimens are often common in mats of filamentous algae. Adults fly readily and will colonize new habitats quickly. The mature larva of *L. affinis* was described from Delta, Manitoba by Watts (1970) and the urogomphi and distal, two abdominal segments are figured in Matta (1983).

Distribution. As presently defined this species occurs throughout North America and as far south as Chile and Argentina within South America. We have seen records from virtually every state (except Hawaii) and province in the U.S. and Canada. It occurs as far north as tree-line but does not seem to extend into the arctic zone.

Liodessus flavicollis (LeConte)

Hydroporus flavicollis LeConte 1855:291, 295.
Selected reference: Young, 1954:60–62.

Description. Habitus, Figure 5. Body broadly ovate, lateral margin strongly discontinuous in outline between pronotum and elytron. Measurements and ratios in Table 1.

This species is the most distinctly colored species of *Liodessus* in our fauna. Dorsal surface with head yellow, pronotum yellow except basal margin between lateral striae, narrowly fuscous; elytra dark brown to black with pale transverse spots (Fig. 5) situated sub-basally, sub-medially and apically, these spots contiguous with pale lateral margin but separated from suture by fuscous area on most specimens; some specimens differing as follows: dark areas of elytron expanded so that pale fascia largely reduced or eliminated, others differ in that pale areas are expanded and longitudinally confluent along suture. Ventral surface various, entirely yellow to brown. Antennomeres entirely yellow, or with outer antennomeres infuscate apically. Palpi yellow. Legs yellow, metatibia yellow.

Head rather finely and sparsely punctate, punctures obscured by well impressed microreticulation. Pronotum conspicuously and very densely punctate, punctures uniformly distributed over entire disc. Elytron conspicuously and very densely punctate, punctures closely spaced, somewhat confluent, and forming irregular transverse rugae, punctures separated by much less than to about their own diameter, each puncture with a conspicuous, slightly flattened, yellowish seta, setae predominantly suberect and longer than distance between punctures; epipleuron densely, finely punctate. Metasternum medially densely and coarsely punctate. Metacoxal plate densely and coarsely punctate. Abdomen with sternum 1 coarsely punctate, punctures distributed in three or more transverse rows; sterna 2 to 5 increasingly finely and sparsely punctate; sternum 6 with a few coarse punctures medially. Dorsal surface of both sexes with microreticulation which is more strongly impressed in female specimens.

Pronotum strongly rounded laterally (Fig. 5), with point of maximum width clearly anterior to hind angles; basal margin more or less straight lateral to stria, posterolateral

angle not produced; lateral stria poorly developed, short, about a fourth to a third length of pronotum measured along same line, poorly delimited laterally; lateral bead fine and of more or less uniform width. Elytra relatively short and oval in dorsal aspect, distinctly narrowed towards base; in lateral profile, obliquely truncate to apex in apical half; basal stria lacking or at most represented by a small impression; epipleuron in lateral aspect broadly visible to humeral angle. Metacoxal lines evidently diverging anteriorly.

Aedeagus (Fig. 10) arcuate in lateral aspect; shaft tapering apically, apex with a dorsally directed hook. The paramere (not figured) is similar to that of *L. hobbsi.*

Collecting notes. Roberts (1913:120), Hatch (1925:106) and Young (1954:61) suggest that *L. flavicollis* is a relatively deep-water resident which is associated with algal mats, and Young further noted that he had not observed adults visiting the pond surface to renew their subelytral air supply. Specimens were collected from Walpole Island, Ontario, by dredging aquatic plants and algae from narrow, deep sandspit ponds. No flight records of this species were found. Sharp (1882:349) found a specimen to be wingless, but Young (1954:61) recorded winged specimens. Specimens with short, non-functional wings were seen from Ontario, Minnesota and Maryland.

Distribution. We have records of this species from throughout eastern North America, west to eastern Manitoba, Minnesota and Mississippi and from southern Ontario and southern Quebec to Florida.

Liodessus hobbsi (Young)

Bidessus hobbsi Young 1950:4.
Selected references: Young, 1950:4–6; 1954:60, 62.

Description. Our description is based on Young (1950:4–6) and a male paratype (FL, Liberty Co., det. F. N. Young, MUN). Habitus, see figure 2 in Young (1950); habitus apparently various, in dorsal aspect similar to *L. flavicollis* (Fig. 5), or body, especially elytra, narrower, at widest scarcely broader than pronotum; lateral margin strongly discontinuous in outline between pronotum and elytron. Measurements and ratios are presented in Table 1.

Dorsal surface uniformly testaceous to pale brown. Ventral surface uniformly testaceous to pale brown. Antennonmeres 1 to 4 or 5 mainly yellow, outer antennomeres slightly infuscate. Palpi unicolorous and yellow or each with apical palpomere darker. Legs uniformly testaceous to pale brown.

Head rather finely punctate. Pronotum conspicuously punctate, punctures large but shallow and widely separated; with two or three enlarged punctures along hind margin between posterolateral angle and base of lateral stria. Elytron coarsely punctate, punctures separated by one to two times their own diameter, each puncture bearing a fine seta subequal in length to distance between punctures; epipleuron inconspicuously punctate. Metasternum and metacoxal plate with coarse, irregularly spaced punctures. Abdomen with sternum 1 coarsely punctate along anterior and posterior margins; sternum 2 medially, and sterna 3 to 5 finely punctate; sternum 6 sparsely punctate medially. Dorsal surface of single male examined microreticulate.

Pronotum relatively strongly rounded laterally, with point of maximum width clearly anterior to hind angles; basal margin strongly sinuate, margin between base of stria and lateral angle arcuate, posterolateral angle evidently produced; lateral stria

moderately developed, about half as long as pronotum measured along same line, strongly delimited laterally; lateral bead fine and of more or less uniform width. Elytra elongate oval in dorsal aspect, distinctly narrowed towards base; in lateral profile, obliquely truncate to apex in apical half; basal stria lacking or at most represented by a small impression; epipleuron in lateral aspect broadly visible to humeral angle. Metacoxal lines subparallel.

Aedeagus (Fig. 11) arcuate in lateral aspect; shaft subparallel, apex with a dorsally directed hook.

Collecting notes. According to Young (1954:62), the two type specimens of *L. hobbsi* ". . . were taken from a shallow pool almost filled with filamentous algae." He also believed that it would be ecologically similar to *L. flavicollis.*

Distribution. Known only from a few specimens from near Wilma, Liberty Co., which is in the Apalachicola flatwoods region of the panhandle of Florida.

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